CHART A
SHEET 1

BASIC WEIGHT CHECK LIST

AIRPLANE MODEL N3N-3 SERIAL NO. 2337

ENTER DATE ◇

COMPARTMENT & ITEM NUMBER	ITEMS AND LOCATION GROUPED BY COMPARTMENT	WEIGHT	ARM	MOMENT /1000	DELIVERY EQUIPMENT	RECORD OF CHECKING															
						27 APR 1951		30 APR 1952		17 JUN 1955											
						CHECK 1		CHECK 2		CHECK 3		CHECK 4		CHECK 5		CHECK 6		CHECK 7		CHECK 8	
						In Airplane	CHART C ENTRY	In Airplane	CHART C ENTRY	In Airplane	CHART C ENTRY	In Airplane	CHART C ENTRY	In Airplane	CHART C ENTRY	In Airplane	CHART C ENTRY	In Airplane	CHART C ENTRY	In Airplane	CHART C ENTRY
A	ENGINE COMPARTMENT		(C-62)																		
A-1	Starter	26	39	1.0	✓	✓		✓		✓											
A-2	Starter Crank & Extension	6	43	0.3	✓	✓		✓		✓											
A-3	Battery	38	58	2.2	✓	✓		✓		✓											
B	PILOT COMPARTMENT		(62-120)																		
B-1	Cockpit Covers - [illegible]	6	77	.5	✓	✓		✓		✓											
B-2	Engine Covers - [illegible]	9	77	.7	✓	✓		✓		✓											
B-3	Tool Kit - Airplane - Stowed	9	77	.7	✓	✓		✓		✓											
B-4	Tool Kit - Engine - Stowed	20	78	1.6	✓	✓		✓		✓											
B-5	CO_2 Bottle - Empty	14	79	1.1	✓	✓		✓		✓											
B-6	Brake Pedals	3	80	.2	✓	✓		✓		✓											
B-7	Safety Belt - Pilot	3	108	.3	✓	✓		✓		✓											
B-8	Pilot's Seat	13	113	1.5	✓	✓		✓		✓											

RESTRICTED
AN 01-15-50

ISSUED 1 APRIL 1948

CHART A SHEET 2

BASIC WEIGHT CHECK LIST

6-1-44

AIRPLANE MODEL N3N-3 SERIAL NO. 2327

ENTER DATE ▷

RECORD OF CHECKING

COMPARTMENT & ITEM NUMBER	ITEMS AND LOCATION GROUPED BY COMPARTMENT	WEIGHT	ARM	MOMENT /100	DELIVERY EQUIPMENT	CHECK 1 (27 APR 1951) In Airplane	CHECK 1 CHART C ENTRY	CHECK 2 (30 APR 1953) In Airplane	CHECK 2 CHART C ENTRY	CHECK 3 (17 JUN 1955) In Airplane	CHECK 3 CHART C ENTRY	CHECK 4 In Airplane	CHECK 4 CHART C ENTRY	CHECK 5 In Airplane	CHECK 5 CHART C ENTRY	CHECK 6 In Airplane	CHECK 6 CHART C ENTRY	CHECK 7 In Airplane	CHECK 7 CHART C ENTRY	CHECK 8 In Airplane	CHECK 8 CHART C ENTRY
C	STUDENT COMPARTMENT		(120-169)																		
C-1	Brake Pedals	3	127	.4	O	✓	✓	✓	✓	✓	✓										
C-2	First Aid Kit	3	134	.4	✓	✓	✓	✓	✓	✓	✓										
C-3	Portable CO_2 Bottle	7	153	1.1	✓	✓	✓	✓	✓	✓	✓										
C-4	Safety Belt - Student	3	157	.5	✓	✓	✓	✓	✓	✓	✓										
C-5	Student's Seat	12	159	1.9	✓	✓	✓	✓	✓	✓	✓										
D	TAIL COMPARTMENT		(169--)																		
D-1	Flare Chutes (2)	8	183	1.5	✓	✓	✓	✓	✓	✓	✓										
E	MISCELLANEOUS																				
E-1	Main Landing Gear	201	167	33.5	O	✓	✓	✓	✓	✓	✓										
E-2	Hoisting Sling (Upper Wing)	2	73	.1	✓	✓	✓	✓	✓	✓	✓										
E-3	Bracing - Main Float	35	78	2.0	✓	✓	✓	✓	✓	✓	✓										
E-4	Main Float	270	80	21.6	✓	✓	✓	✓	✓	✓	✓										
E-5	Bracing - Wing Tip Float (2)	16	102	1.6	✓	✓	✓	✓	✓	✓	✓										
E-6	Wing Tip Floats (2)	63	111	7.0	✓	✓	✓	✓	✓	✓	✓										
E-7	Tail Landing Gear	27	262	7.1	O	✓	✓	O	✓	O	✓										

RESTRICTED

ISSUED 1 APRIL 1943

8-1-44

• BASIC WEIGHT and BALANCE RECORD •

CONTINUOUS HISTORY OF CHANGES IN STRUCTURE OR EQUIPMENT AFFECTING WEIGHT & BALANCE

AIRPLANE MODEL N3N-3 SERIAL NO. 2311

CHART C SHEET

DATE	ITEM NO. IN	ITEM NO. OUT	DESCRIPTION OF ARTICLE OR MODIFICATION	WEIGHT CHANGE ADDED (+) WEIGHT	ADDED (+) MOMENT/1000	REMOVED (—) WEIGHT	REMOVED (—) MOMENT/1000	RUNNING TOTAL BASIC AIRPLANE WEIGHT	RUNNING TOTAL BASIC AIRPLANE MOMENT/1000	INDEX
26JAN48			BASIC WT.-ACT. WEIGHING-CHIN COL. DELIV.					2365	200.97	
			BASIC WEIGHT FROM SIMILAR							
27 APR 1951			O&R -NAS- NORFOLK, VA. PLANE BU. NO. 4494					2346	197.8	
			BASIC WEIGHT FROM SIMILAR							
20 APR 1953			O&R -NAS- NORFOLK, VA. PLANE BU. NO. 2896					2338	198.1	
			BASIC WEIGHT FROM SIMILAR							
JUN 17 1955			O&R -NAS- NORFOLK, VA. PLANE BU. NO. 2670					2338	198.1	

RESTRICTED

RESTRICTED
AN 01-1B-40

6-1-44

• BASIC WEIGHT and BALANCE RECORD •

CONTINUOUS HISTORY OF CHANGES IN STRUCTURE OR EQUIPMENT AFFECTING WEIGHT & BALANCE

CHART C SHEET

AIRPLANE MODEL N3N-3 SERIAL NO. [illegible]

DATE	ITEM NO.		DESCRIPTION OF ARTICLE OR MODIFICATION	WEIGHT CHANGE				RUNNING TOTAL BASIC AIRPLANE		
				ADDED (+)		REMOVED (—)				
	IN	OUT		WEIGHT	MOMENT / 1000	WEIGHT	MOMENT / 1000	WEIGHT	MOMENT / 1000	INDEX

RESTRICTED.

RESTRICTED
AN 01-10-40

8-1-44

AIRPLANE WEIGHING FORM

DATE WEIGHED _____ MODEL N3N-3 SERIAL NO. [illegible]

PLACE WEIGHED _____ WEIGHING OFFICER _____

WHEEL	SCALE READING	TARE	NET WEIGHT	ARM (Inches)	MOMENT
LEFT MAIN					
RIGHT MAIN					
SUB-TOTAL *(Both Main)*				E	
NOSE OR TAIL				F	
TOTAL *(As Weighed)*				H	

MEASUREMENTS

B = _____ inches, the distance from the jig point or frame to the center line of the main wheels. Obtain by measurement.

I = _____ inches, the distance from the reference datum to some accessible exterior jig point or frame of the airplane from which a plumb bob can be dropped to the ground. Obtain from the diagram on the balance computer or from Chart E.

E = _____ inches, the distance from the reference datum to the center line of the main wheels.

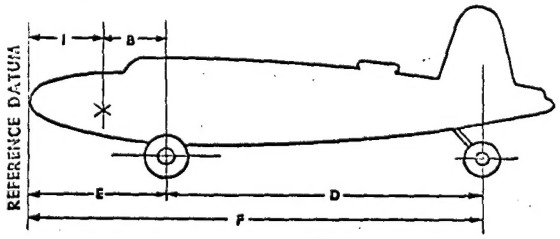
E = I + B
E = I − B *(If the jig point is aft of the center line of the main wheels.)*

D = _____ inches, the wheel base *(or the distance between fore and aft reactions)*. Obtain by measurement.

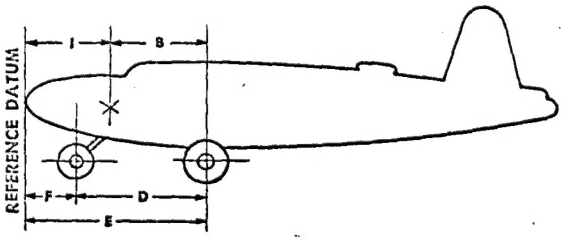
F = _____ inches, the distance from the reference datum to the center line of the nose or tail wheel.

F = E − D *(for nose wheel airplanes)*
F = E + D *(for tail wheel airplanes)*

TAIL WHEEL AIRPLANE



NOSE WHEEL AIRPLANE



DIAGRAMS FOR MEASURING VARIOUS TYPES OF AIRPLANES TO DETERMINE ARM OF SUPPORT POINTS.

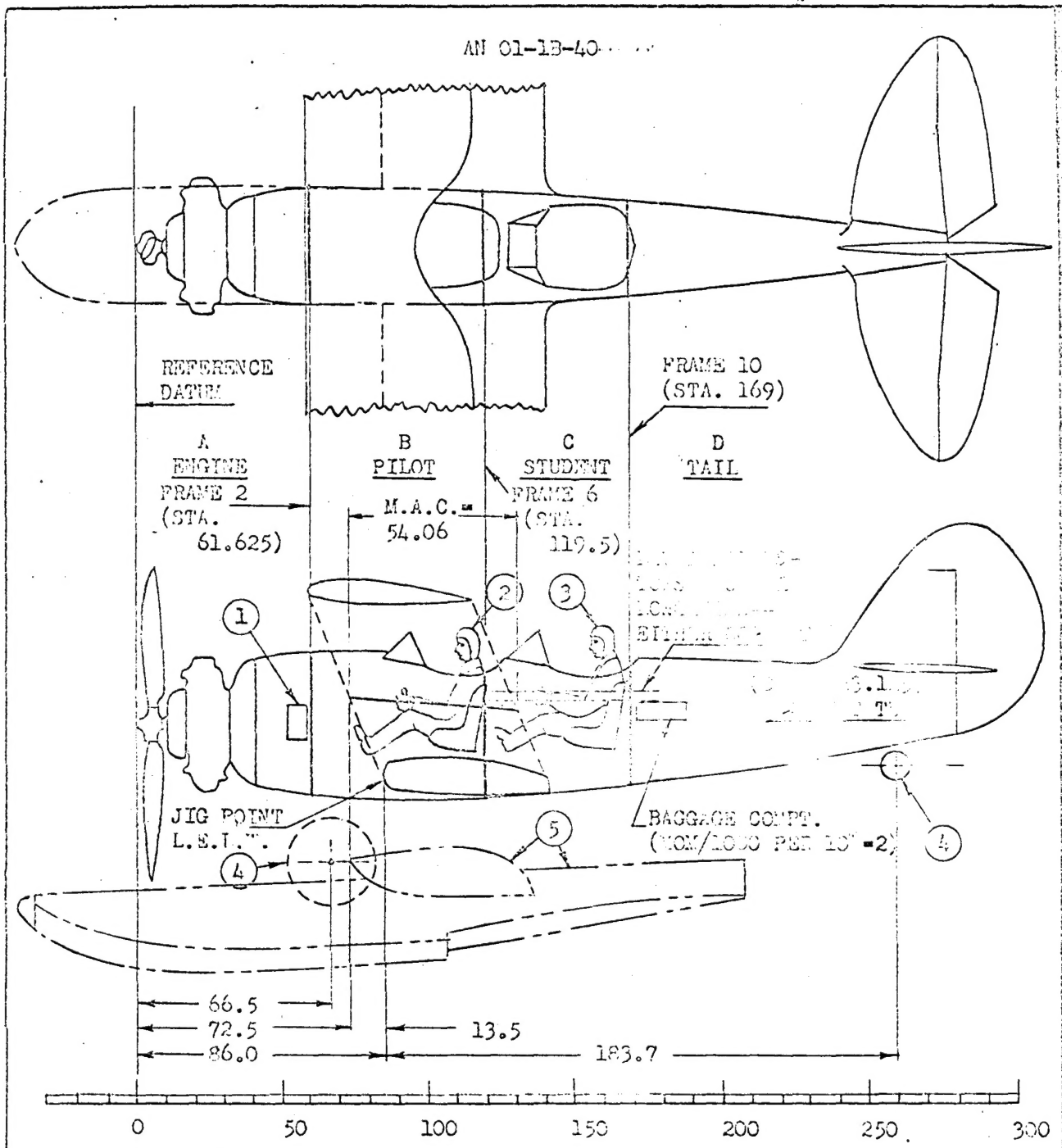
WEIGHING RECORD

DESCRIPTION	NET WEIGHT	ARM	MOMENT	INDEX OR MOMENT/1000
TOTAL *(As Weighed)*				
OIL IN AIRPLANE	−		−	
TOTAL OF ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT *(From Col. I Below)*	−		−	
TOTAL OF BASIC ITEMS NOT IN AIRPLANE WHEN WEIGHED *(From Col. II Below)*	+		+	
BASIC AIRPLANE *(Post to Chart C)*				

COLUMN I				COLUMN II			
ITEMS WEIGHED BUT NOT PART OF BASIC WT.	WEIGHT	ARM	MOMENT	BASIC ITEMS NOT IN AIRPLANE WHEN WEIGHED	WEIGHT	ARM	MOMENT
TOTAL				TOTAL			

REMARKS:

AN 01-1B-40



1. BATTERY
2. PILOT
3. STUDENT
4. WHEEL TYPE LANDING GEAR (ALT.)
5. FLOAT TYPE LANDING GEAR (ALT.)

AN 01-1B-40

TYPICAL SERVICE LOADING CONDITIONS

ITEM	ARM	TRAINER		ONE MAN (FRONT COCKPIT)		ONE MAN (REAR COCKPIT)	
		WEIGHT	MOMENT / 1000	WEIGHT	MOMENT / 1000	WEIGHT	MOMENT / 1000
PILOT	110.0	200	22.0	200	22.0		
STUDENT	157.0	200	31.0			200	31.0
FUEL 45 GAL.	75.6	270	20.4	270	20.4	270	20.4
OIL 3.75 GAL.	56.7	28	1.6	28	1.6	28	1.6
BALLAST	157.0			125	19.6		
PARACHUTE FLARES	183.0	40	7.3	40	7.3	40	7.3
TOTALS		738	82.3	663	70.9	538	60.3

BASIC WEIGHTS

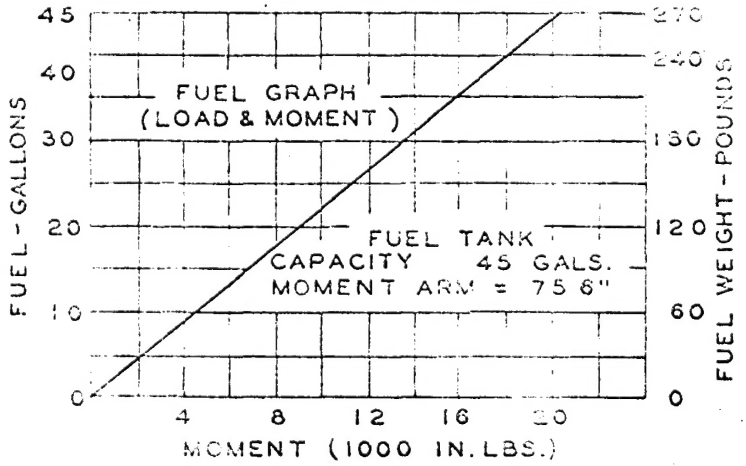
CONDITION	WEIGHT-LB.	MOM/1000
SEAPLANE: (INCLUDING ITEMS A-1 A-2 A-3 B-1 B-2 B-4 B-5 B-7 B-8 C-2 C-3 C-4 C-5 D-1 E-2 E-3 E-4 E-5 AND E-6)	2403	202.6
LANDPLANE: (INCLUDING ITEMS A-1 A-2 A-3 B-1 B-2 B-4 B-5 B-6 B-7 B-8 C-1 C-2 C-3 C-4 C-5 D-1 E-1 E-2 AND E-4)	2283	191.6

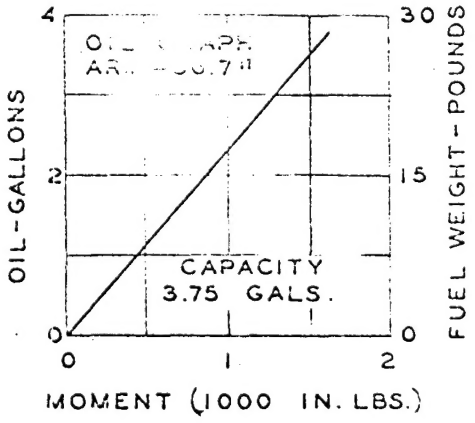
RESTRICTIONS

WHEN FLYING SOLO FROM THE FRONT COCKPIT 125 POUNDS BALLAST MUST BE CARRIED IN THE REAR COCKPIT (COMPARTMENT C).

WHEN AIRPLANE IS TO BE FLOWN AT HIGH ACCELERATIONS OR IN VIOLENT MANEUVERS NO BAGGAGE OR PARACHUTE FLARES ARE TO BE CARRIED.

BAGGAGE COMPARTMENT CAPACITY IS 20 POUNDS.





6-1-44

TACTICAL
WEIGHT and BALANCE CLEARANCE

FORM F

DATE_____ AIRPLANE N3N-3 FROM_____

MISSION_____ SERIAL NO._____ TO_____

• REMARKS •

REF.	ITEM	WEIGHT	INDEX OR MOMENT/
1	BASIC AIRPLANE (*from chart C*)		
2	( ) Gallons		
OIL			
3	DISTRIBUTION OF LOAD		

COMPT.	CREW NO.	CREW WEIGHT	BAGGAGE	CARGO AND MISC.
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				
K				
L				
M				
N				

COMPUTER PLATE NO._____
(If Used)

This weight and index or moment must be within limits for landing. If this is impossible, pertinent instructions to the pilot for shifting load and crew should be noted above. Particular care must be taken when paratroops are evacuated.

CORRECTIONS *(Ref. 9)*

COMPT.	ITEM	CHANGES (+ or −) WEIGHT	CHANGES (+ or −) INDEX OR MOMENT/
TOTAL WEIGHT REMOVED		−	−
TOTAL WEIGHT ADDED		+	+
NET DIFFERENCE *(Ref. 9)*			

4	MINIMUM LDG. GR. WT.		
5	( ) Rds. ( ) Cal.		
AMMUNITION (By Compartment)			
6	FORWARD		
BOMBS	AFT		
	EXTERNAL		
7	BUILT IN ( ) Gal.		
FUEL	BOMB BAY ( ) Gal.		
	EXTERNAL ( ) Gal.		
8	TAKE-OFF CONDITION *(Uncorrected)*		
9	CORRECTIONS *(if required)*		
10	TAKE-OFF CONDITION (Corrected)		
	TAKE-OFF CG IN % M.A.C.		

LIMITS

Recommended Max. Take-off Gr. Wt._____LB.

Recommended Max. Landing Gr. Wt._____LB.

Permissible CG Limits_____% to_____% M.A.C.

COMPUTED BY_____

WEIGHT & BAL. OFFICER_____

PILOT_____

(FOR TRANSPORT AND CARGO MISSIONS, USE OTHER SIDE)

8-1-114

TRANSPORT AND CARGO
WEIGHT and BALANCE CLEARANCE

FORM
F

DATE_____ AIRPLANE_____ FROM_____

FLIGHT_____ SERIAL NO._____ TO_____

PRELIMINARY ESTIMATE	WEIGHT
ALLOWABLE GROSS WEIGHT	
TOTAL AIRPLANE & FUEL WT. (Ref. 10)	
ALLOWABLE LOAD (Ref. 11)	

LIMITS

Recommended Max. Take-off Gr. Wt._____LB.

Recommended Max. Landing Gr. Wt._____LB.

Permissible CG Limits_____ to_____% M.A.C.

REF.	ITEM	WEIGHT	INDEX OR MOMENT/
1	BASIC AIRPLANE (from chart C)		
2	OIL (Gallons)		
3	CREW (No.)		
4	CREW'S BAGGAGE		
5	STEWARD'S EQUIPMENT		
6	EMERGENCY EQUIPMENT		
7	EXTRA EQUIPMENT		
8	OPERATING WEIGHT		
9	TAKE-OFF FUEL (Gallons)		
10	TOTAL AIRPLANE & FUEL WEIGHT		
11	DISTRIBUTION OF ALLOWABLE LOAD		

o REMARKS o

COMPT.	PASSENGERS NO.	PASSENGERS WEIGHT	BAGGAGE	MAIL	CARGO	WEIGHT	INDEX OR MOMENT/
A							
B							
C							
D							
E							
F							
G							
H							
I							
J							
K							
L							
M							
N							
O							
P							

COMPUTER PLATE NO._____ (If Used)

CORRECTIONS (Ref. 13)

COMPT.	ITEM	CHANGES (+ or −) WEIGHT	CHANGES (+ or −) INDEX OR MOMENT/
TOTAL WEIGHT REMOVED		−	−
TOTAL WEIGHT ADDED		+	+
NET DIFFERENCE (Ref. 13)			

12	TAKE-OFF CONDITION (Uncorrected)		
13	CORRECTIONS (If required)		
14	TAKE-OFF CONDITION (Corrected)		

TAKE-OFF CG IN % M.A.C.

NOTE: Moment will be used only when the balance computer is not available.

COMPUTED BY_____

WEIGHT & BAL. OFFICER_____

PILOT_____

(FOR TACTICAL MISSIONS, USE OTHER SIDE)

REPORT NO. M-4094

MODEL N3N-3 AIRPLANE

ERECTION AND MAINTENANCE INSTRUCTIONS

Submitted under Item C(2), Part III, Specification SR-6E

FINAL CORRECTED FOR

PROJECT ORDER 58-40 AIRPLANE NOS. 1759 TO 1808
PROJECT ORDER 117-40 AIRPLANE NOS. 1908 TO 2007

Submitted under Item F, Part II, Specification SR-6E

FOR

PROJECT ORDER 50-41 AIRPLANE NOS. 2573 TO 3072
PROJECT ORDER 149-41 AIRPLANE NOS. 4352 TO 4517

Dick Frye:
Coolidge any.

APPROVED WM. NELSON
Chief Engineer

REVISIONS

DATE	PAGES AFFECTED	REMARKS
3/14/40	Title page, 6, 22, 27, 28 & 47	To agree with present design
4/1/40	5, 22 & 25	R.H.Elevator Tab added. Finish Spec. (Report M-4098) added.
12/16/40	1 and Appendix I	Final Corrected Information
	1 to 97 inclusive	Photographs & Drawings added.
3/12/41	Title page, 3, 50 & 76	Revised for Project Orders 50-41 and 149-41

No.of Sheets 97 (Sections I to VII incl.)
~~(Section VIII (Report M-4098) 29 Sheets)~~

Date 2/1/40

ERECTION AND MAINTENANCE INSTRUCTIONS

MODEL N3N-3 AIRPLANE

SECTION I - INDEX

INDEX OF ILLUSTRATIONS

INDEX OF ILLUSTRATIONS (Continued)

REVISED 3/12/41

SECTION II - SHIPMENT OF AIRCRAFT

1. Because no N3N-3 airplanes have to date been shipped by railway car, no details of crating procedure or shipping weights are available. Hence the following data are taken from the N3N-1, Report M-105-a, and any changes necessary for N3N-3 will be indicated briefly.

2. In preparing the N3N-3 airplane for shipment racked in a freight car, the following general procedure is followed:

   (a) 1. (Seaplane) - Two cradles with a complete fuselage mounted on each. Weight empty 179 pounds - packed 1313 pounds. Attachment lugs are different from those on N3N-1 cradles.

   (a) 2. (Landplane) - Fuselage is placed in car in normal 3-point attitude, wheels blocked and whole assembly firmly fastened down with straps, etc.

   (b) (Seaplane Only) - One crate containing two sets of main and wing tip floats, struts and wires and two sets of interplane and cabane struts and wires. Size 3' 5" x 5' 10" x 21' 2". Weight empty 480 pounds - packed 1506 pounds. (For landplane this crate is eliminated and the interplane and cabane struts and wires are crated separately.)

   (c) One crate containing 2 sets of elevators - size 1' 10" x 2' 3" x 6' 2". Weight empty 15 pounds - packed 52 pounds.

   (d) One crate containing 2 sets of stabilizers - size 1' 6" x 2' 9" x 6' 2". Weight empty 15 pounds - packed 73 pounds.

   (e) One crate containing 2 rudders - size 1' 8" x 4' 0" x 4' 9". Weight empty 28 pounds - packed 66 pounds. Shape of crate is different from N3N-1 crate.

   (f) One crate containing two sets of lower wing panels. Size 2' 10" x 5' 4" x 15' 7". Weight empty 440 pounds - packed 812 pounds.

   (g) One case containing two batteries - size 1' 0" x 1' 0" x 2' 6". Weight empty 18 pounds - packed 94 pounds. This item only when batteries are furnished with airplanes.

   (h) One case containing two sets of windshields - size 1' x 6" x 1' 10" x 2' 11". Weight empty 67 pounds - packed 136 pounds.

(i) One crate containing 2 carburetors - size 1' 0" x 1' 0" x 2' 10". Weight empty 23 pounds - packed 67 pounds.

(j) One case containing 2 sets of cockpit and engine covers, safety belts, erection drawings, first aid kit - size 11" x 1' 7" x 1'11".Weight empty 24 pounds - packed 60 pounds.

(k) Two cases each containing one propeller - size 11" x 11" x 9' 2". Weight empty 66 pounds - packed 141 pounds.

Spreaders, tiedowns and blocking for upper panels 346 pounds.

Two upper panels - weight 342 pounds.

3. The above items are racked in one forty foot open end automobile freight car, and consist of two complete N3N-3 airplanes. In order to ship one airplane or parts thereof, adequate changes in crates or new crates must be provided.

4. For delivery by air, the airplane is set up as a landplane, serviced and ready for flight with the following equipment stowed away in their respective compartments:

(a) Cockpit and engine covers.

(b) Tool kit.

(c) First aid kit.

(d) Erection and Maintenance Manual, and airplane and engine log books. (Placed in baggage compartment.)

SECTION III - ERECTION PROCEDURE

1. Assembly of Wing Group.

   (a) Refer to Wing Erection Drawing 68141, page 23 for arrangement of wings, struts, wires, ailerons, etc.

   (b) Since "N" struts and cabane struts are of fixed lengths, it is possible to assemble wing cellule as expeditiously as the facilities and equipment on hand will permit.

   (c) Align as follows:

      (1) Level fuselage (use top surface of upper longerons in either cockpit for leveling longitudinally and transversely).

      (2) Adjust cabane incidence wires so that leading edge of upper wing is 26-7/32" ahead of L.E. of lower wing. L.E. on lower wing is fixed. Measure the stagger at 22-1/2" from ℄ of airplane.

      (3) Adjust the front cabane cross brace or rolling wires so that upper wing is level (May be measured from top of right cabane struts to top of left cabane struts). NOTE: There are no rear cabane cross brace wires.

      (4) Adjust landing and flying wires so that upper wing is level throughout.

      (5) If the above procedure has been carried out, the wings will be in proper alignment. It should show 2° incidence for upper and lower panels, 0° dihedral in upper, +2° dihedral in lower, 26-7/32" stagger at 22-1/2" from ℄ of airplane and a mean gap of 62-5/16". Gap at outer strut 60-13/16".

      (6) A misalignment in stagger can be taken care of by readjustment of the cabane incidence wires.

      (7) To correct for wing heaviness: After flight testing, if it is found that the airplane is "wing heavy", this condition may be quickly and effectively remedied by slightly hinging up the trailing edge flap of the aileron, on the heavy side. Care should be taken not to hinge the trailing edge flap too severely. A very slight amount of hinging will correct for a considerable amount of "wing heaviness".

(8) The lower wing panels are provided with removable tips, fastened to the wing proper with slotted head steel screws. Eight screws are used on each panel. To remove wing tip, cut fabric for accessibility to screws. Cut fabric between wing and wing tip.

(9) The ailerons are assembled on the wings prior to the wing erection.

(10) The inter-aileron strut has an adjustable end at the lower aileron connection.

(d) Connection of wiring, air speed tubing and fairing.

(1) Single wires for both navigation lights are carried in conduit aft of the upper rear beam and connected to a junction box provided on the beam at the upper end of the right hand rear cabane strut attachment point. After the wings have been assembled the wire for the navigation lights carried in the right hand rear cabane strut shall be attached to the junction box. A door is provided on the under side of the wing panel for access to this junction box.

(2) The air speed tubing is carried through the lower left wing aft of the front beam to the air speed pitot tube on the left front interplane strut. After setting of wings, this tubing must be connected at the fuselage and at the lower left end of the "N" strut.

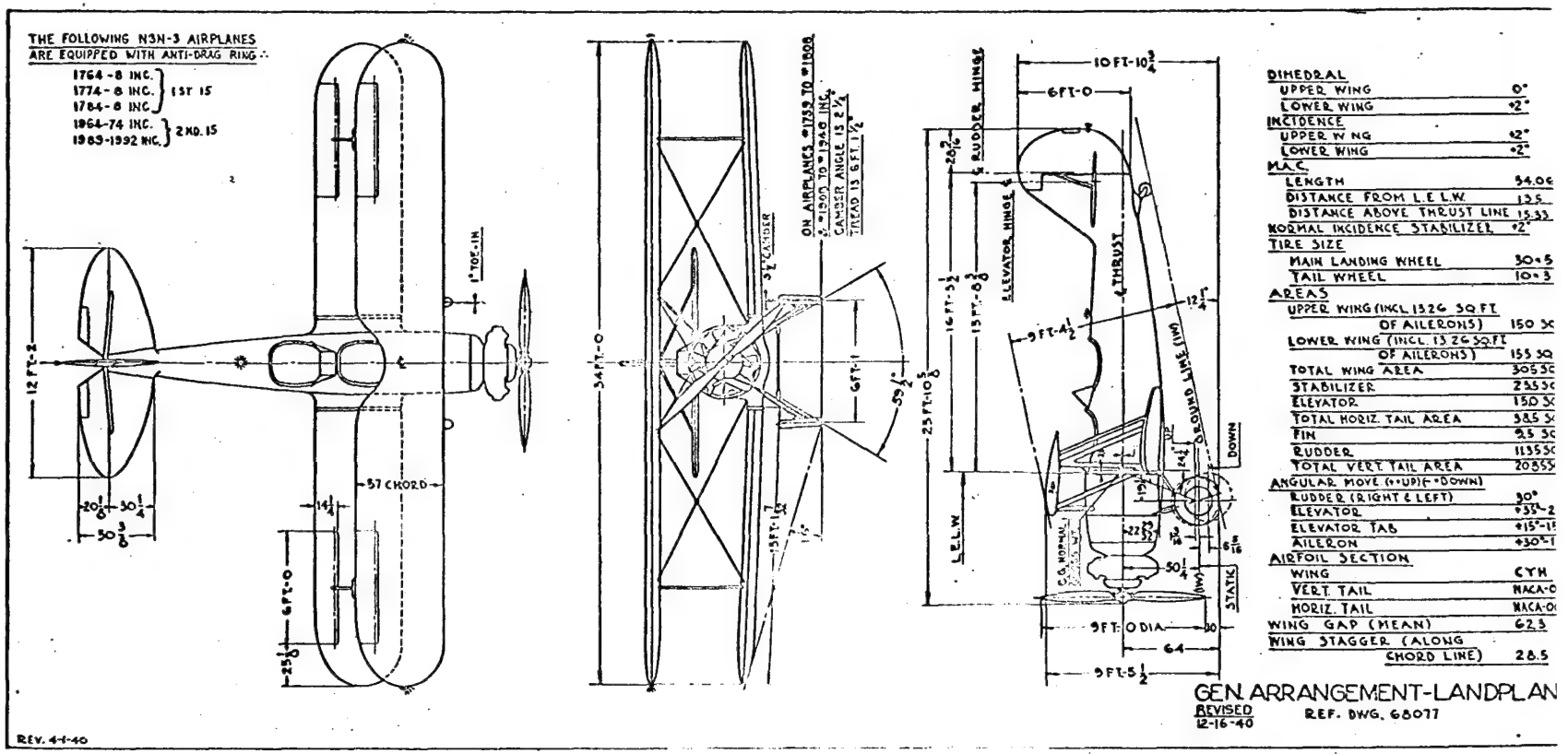
(3) Fairing strips are provided over the joint between the fuselage wing stub and the lower wings. These strips are removable to provide accessibility to the wing hinge bolts.

2. Assembly of Tail Group.

(a) Refer to Tail Erection Drawing 67669, page 32 for arrangement of tail surfaces.

(b) The vertical fin is attached to the fuselage structure by means of ten (10) 5/16 bolts. Four (4) bolts at front beam, frame #16, and six (6) bolts at rear beam, frame #18. These bolts are accessible by removing fin fairing and rear removable panels on left side of fuselage.

(c) Each stabilizer is attached to the fuselage by two (2) vertical bolts and braced to the vertical fin by struts.



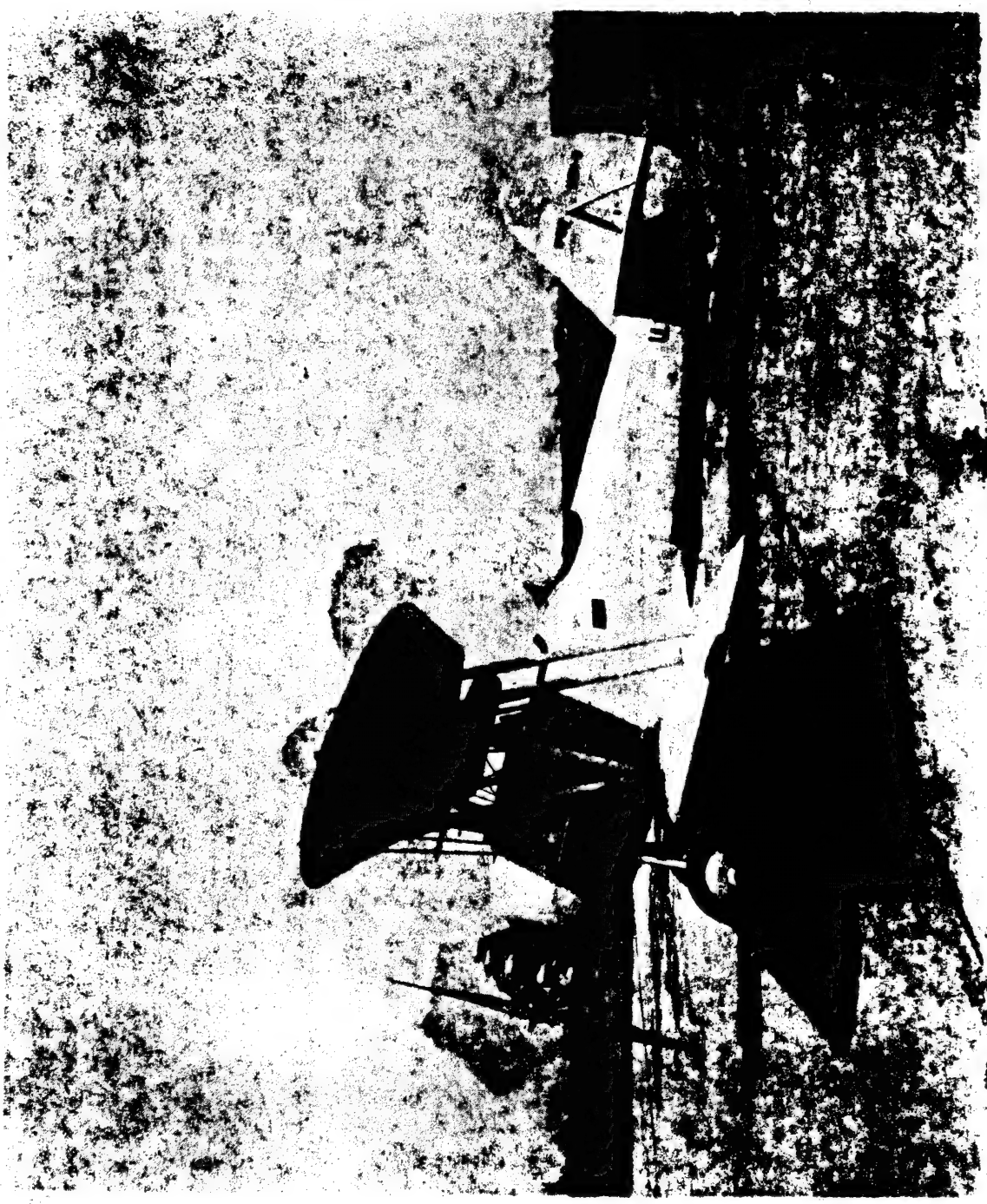
DIHEDRAL	
UPPER WING	0°
LOWER WING	+2°
INCIDENCE	
UPPER WING	+2°
LOWER WING	+2°
MAC	
LENGTH	54.06
DISTANCE FROM L.E. L.W.	13.5
DISTANCE ABOVE THRUST LINE	15.33
NORMAL INCIDENCE STABILIZER	+2°
TIRE SIZE	
MAIN LANDING WHEEL	30×5
TAIL WHEEL	10×3
AREAS	
UPPER WING (INCL 13.26 SQ FT OF AILERONS)	150 SQ
LOWER WING (INCL. 13.26 SQ FT OF AILERONS)	155 SQ
TOTAL WING AREA	305 SQ
STABILIZER	23.5 SQ
ELEVATOR	15.0 SQ
TOTAL HORIZ. TAIL AREA	38.5 SQ
FIN	9.5 SQ
RUDDER	11.35 SQ
TOTAL VERT. TAIL AREA	20.85 SQ
ANGULAR MOVE (+UP) (-DOWN)	
RUDDER (RIGHT & LEFT)	30°
ELEVATOR	+35°-2
ELEVATOR TAB	+15°-1
AILERON	+30°-1
AIRFOIL SECTION	
WING	CYH
VERT. TAIL	NACA-0
HORIZ. TAIL	NACA-0
WING GAP (MEAN)	62.3
WING STAGGER (ALONG CHORD LINE)	28.5

GEN. ARRANGEMENT-LANDPLAN

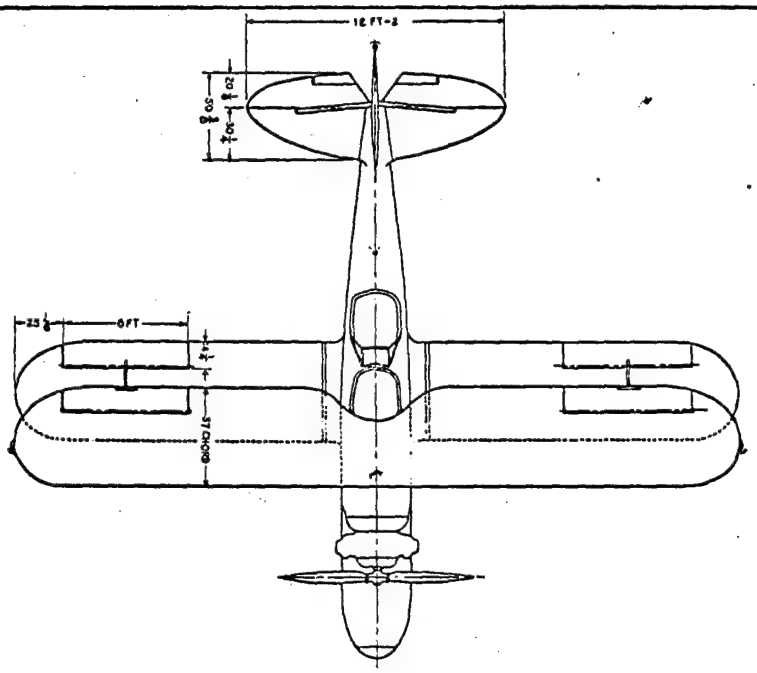
REVISED 12-16-40

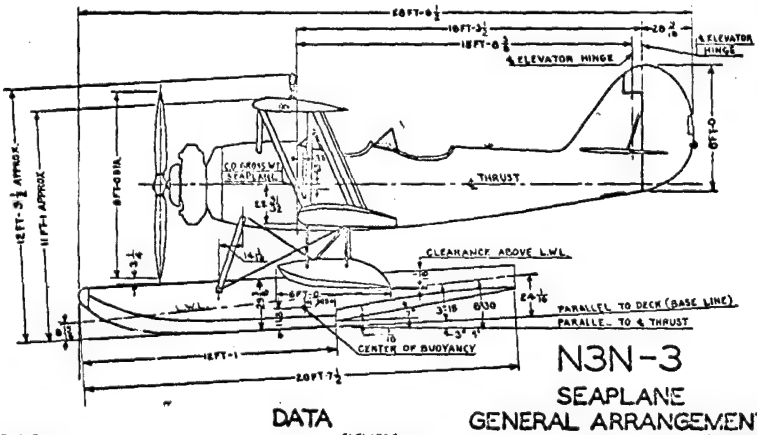
REF. DWG. 68077

REV. 4-1-40



SIDE VIEW - LANDPLANE





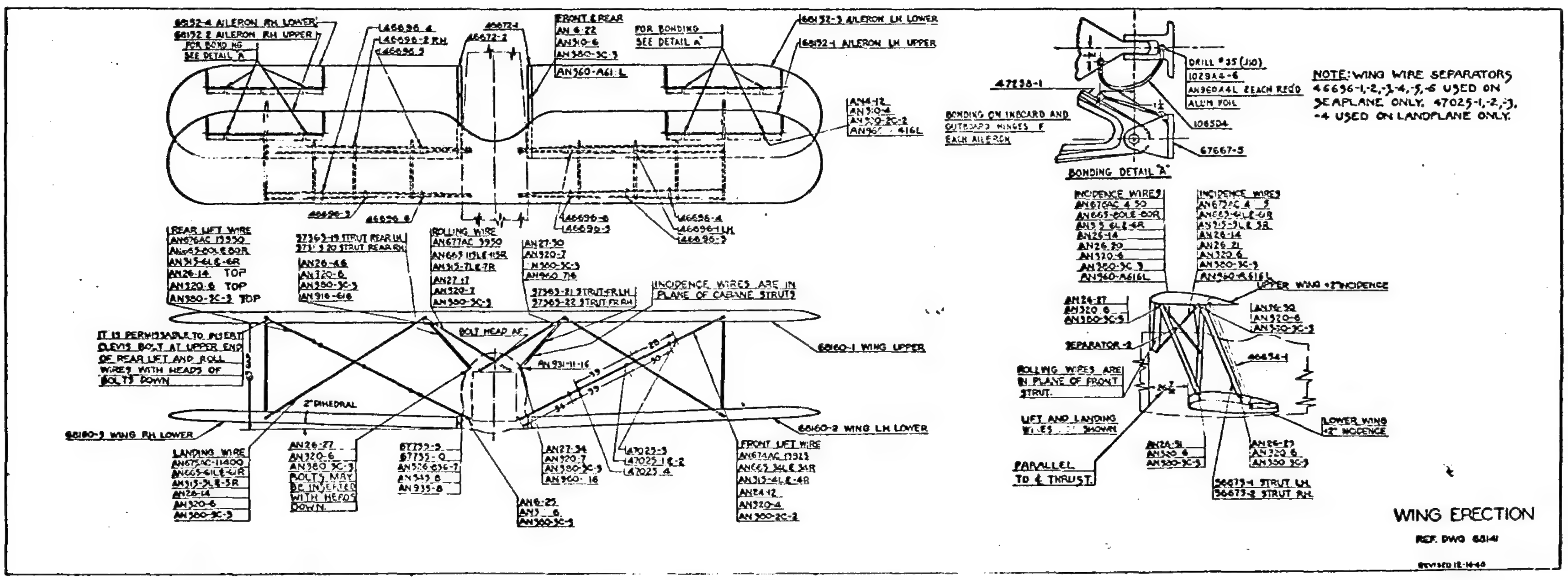
N3N-3
SEAPLANE
GENERAL ARRANGEMENT

REF. DWG. 68301

DATA

DIHEDRAL:-	
UPPER WING	+0°
LOWER WING	+2°
INCIDENCE -	
UPPER WING	+2°
LOWER WING	+2°
M.A.C.:-	
LENGTH	54.00
DISTANCE FROM L.E.L.W.	13.9
DISTANCE ABOVE THRUST LINE	17.33
NORMAL INCIDENCE STABILIZER	+2°
GROSS DISPLACEMENT:-	
MAIN FLOAT	5470 LB.
WING TIP FLOAT	395 LB.
AREA:-	
UPPER WING (INCLUDING 13.26 SQ.FT. AILERON)	150 SQ.FT.
LOWER WING (INCLUDING 13.26 SQ.FT. AILERONS)	153 SQ.FT.
TOTAL WING AREA	303 SQ.FT.
STABILIZER	23.5 SQ.FT.
ELEVATOR	15.0 SQ.FT.
TOTAL HORIZ. TAIL AREA	50.5 SQ.FT.
FIN (INCLUDING LOCK OF RUDDER BALANCE	9.5 SQ.FT.
RUDDER	11.35 SQ.FT.
TOTAL VERT. TAIL AREA	20.85 SQ.FT.
ANGULAR MOVEMENTS (+=UP) (-=DOWN)	
RUDDER (R GHT & LEFT)	30°
ELEVATOR	+35°-25°
ELEVA OR TAB	+15°-15°
A LERON	+30°- 8°
AIRFOIL SECTION	
WING	CYH
VERT. TAIL	NACA-0009
HORIZ. TAIL	NACA-0006
MAXIMUM DRAFT	19 3/4
WING GAP (MEAN)	62.3
WING STAGGER (ALONG CHORD LINE)	28.5

ADDITION 12-16-40


NOTE: WING WIRE SEPARATORS 46696-1,-2,-3,-4,-5,-6 USED ON SEAPLANE ONLY. 47025-1,-2,-3,-4 USED ON LANDPLANE ONLY.
BONDING DETAIL "A"
INCIDENCE WIRES ARE IN PLANE OF CABANE STRUTS
2° DIHEDRAL
68160-1 WING UPPER
68160-2 WING LH LOWER
68160-3 WING RH LOWER
UPPER WING +2° INCIDENCE
LOWER WING +2° INCIDENCE
PARALLEL TO ℄ THRUST
WING ERECTION
REF. DWG 68141

(d) Elevators are then attached to the Stabilizers.
NOTE: Elevator control horn is permanently attached to the fuselage and serves as the center elevator hinge. Two bolts 5/16 diameter (one above and one below the elevator) assemble elevators to horn.

(e) Three bolts (one at top and two at bottom) assemble the entire tail wheel unit to fuselage structure at frame #16. Access is provided in the bottom and left side of the fuselage fairing.

(f) Rudder is then assembled on the tail-fin post.

(g) Alignment of tail surfaces: The tail surfaces can be assembled in only one position. No other adjustment or alignment is possible or necessary.

(h) Incidence angle of stabilizer is +2°, with a tolerance of plus or minus 15 minutes.

(i) The left hand elevator has an adjustable trailing edge tab which is controllable from each cockpit. This tab and its control mechanism are assembled on the left hand elevator and are part of the complete assembly of the left hand elevator. To remove tab, remove inboard hinge bolt and disconnect control rod. An access door over the leading edge of the elevator beam provides accessibility to the tab controls.

(j) The right hand elevator has an adjustable trailing edge tab, locked with tab set up 3°. Tab adjustable on the ground only.

(k) Fairing is provided over the joint between the tail unit and the fuselage.

(l) Tail wheel unit is removable when airplane is geared with floats. A cover plate is provided over the opening in bottom of fuselage structure and is secured with the same quick detachable fasteners used to secure the tail wheel boot.

(m) To remove tail surfaces:

Rudder

(a) Disconnect electrical conduit and wire at junction box provided at frame #16.

(b) Disconnect rudder control cables at rudder horns.

(c) Remove side fairing at lower end of rudder.

Elevator

(a) Disconnect elevator tab wires at the lever in left hand elevator (turnbuckle provided in fuselage). Remove pulley from elevator.

(b) Disconnect horizontal bolts on front beams connecting L.H. and R.H. elevators and horn.

(c) Disconnect elevator hinges.

NOTE: A removable door is provided on the left side, at the rear of fuselage for accessibility to accomplish the above work.

3. Assembly of Body Group.

(A) Fuselage Group

(1) Refer to Fuselage - Covering Assembly Drawing 67633, page 37 and 67731, page 38 for general arrangement of fuselage skeleton.

(2) Stub wing is an integral part of the fuselage skeleton.

(3) Flooring is an integral part of the fuselage.

(4) The cockpit cowling is secured with screws and may be removed on an overhaul job. All the cowling on the gas tank compartment and on the engine compartment is secured with quick detachable fasteners and is readily removable.

(5) Removable panels (5) are provided on the left side of fuselage which provide ample access to any part of the fuselage.

(6) Removable panels (2) are provided on the bottom of the fuselage, aft of frame #4. This provides accessibility to entire control stick unit underneath the floor.

(B) Landing Gear - Wheel Type

(1) The landing gear is of the high cross axle type with "nut cracker" oleo-shock absorbers. Refer to Drawing 67706, page 42 for the general arrangement.

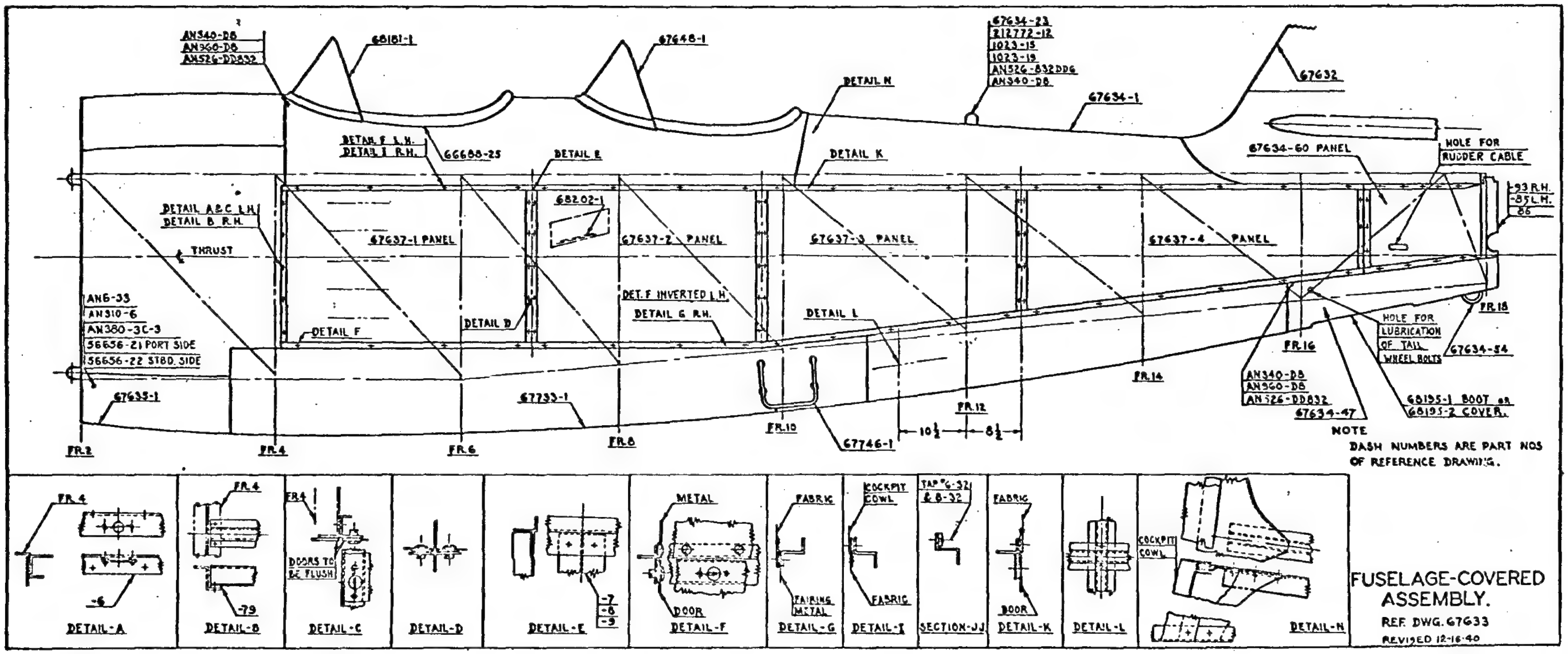
(2) All struts are fixed. Alignment of wheel gear is obtained by means of the tie rods in the plane of the cross axle.

TAIL ERECTION-INSTALLATION

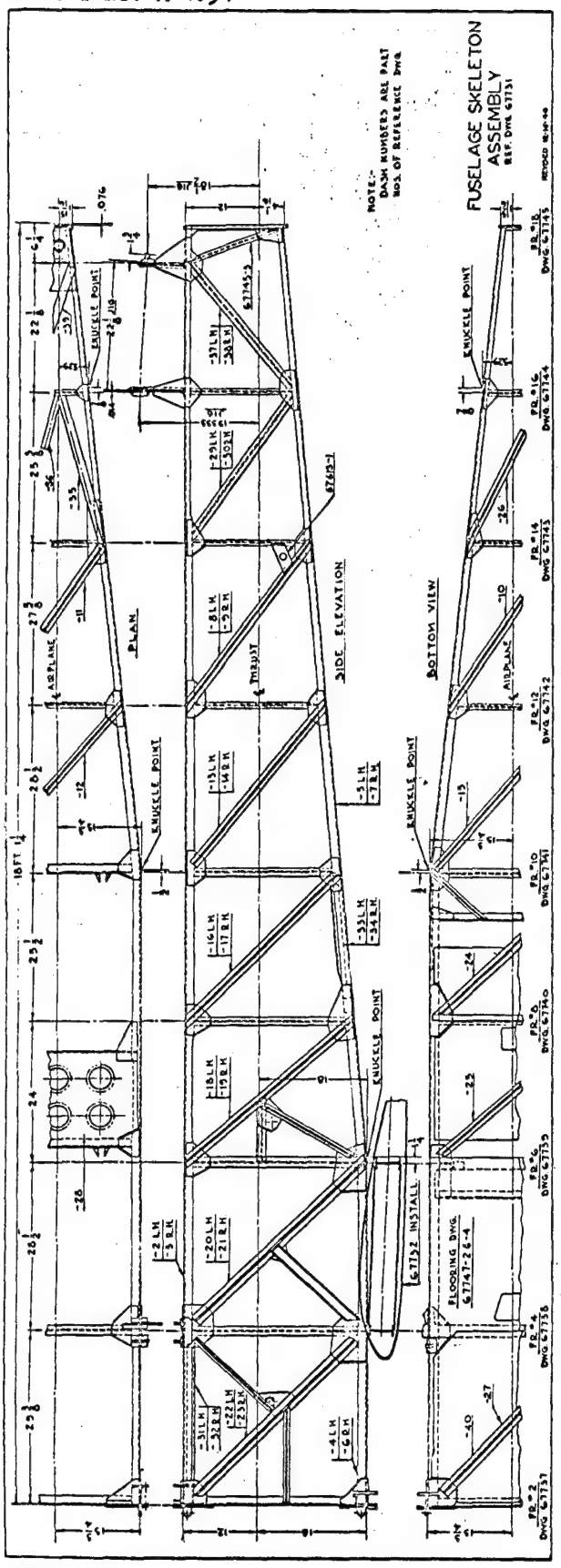
REF. DWG. 67669

REVISED 12-18-40

REV 4-1-40



FUSELAGE-COVERED
ASSEMBLY.
REF. DWG. 67633
REVISED 12-16-40


FUSELAGE SKELETON ASSEMBLY
PLAN
SIDE ELEVATION
BOTTOM VIEW
KNUCKLE POINT
AIRPLANE
THRUST
67732 INSTALL
FLOORING DWG. 67747-264-4
NOTE:- DASH NUMBERS ARE PART NOS. OF REFERENCE DWG.

LANDING GEAR - ASSEMBLY

REF. DWG 67706

3-20-41

REVISED

(3) 30" x 5" standard disc wheels equipped with 11 x 2 "Duo Servo" hydraulic brakes are used on this airplane. Air pressure in tires is 50 pounds.

(4) The shock absorber struts are of the spring oil type equipped with torque arms, wheel brake fittings on lower end of struts and jack pads underneath the wheel brake fitting.

(5) Use mineral oil, Specification M-339, refer to T.O. 27-39.

(6) After struts have been filled with oil as directed on nameplate, apply air at 10 lb. pressure through air valve on struts.

(C) Brakes - Hydraulic

(1) Refer to Drawing 67708, page 46 for installation and details.

(2) One end of the master cylinder connects directly to brake foot pedal. This master cylinder has an adjustable end by means of which the brake foot pedal can be properly aligned.

(3) The hydraulic brake system shown on Drawing 67708, page 46 is not installed in the N3N-3 airplane when rigged as a seaplane. The parts on the rudder pedals which pertain to the hydraulic brakes and which are marked thus (*) on Drawing 67708, page 46 are also not required when rigged as a seaplane.

(4) Maintenance of the hydraulic brakes:

For the sake of clarification, the hydraulic brake system is divided into six major parts as follows:

I Fluid
II Fluid Reservoir
III Master Cylinder
IV Bleeding the Lines
V Brakes
VI Inspection of Brakes

I Fluid

The fluid used is Lockheed #5. Refer to T.O. 27-39.

II Fluid Reservoir (See -4, page 46).

The reservoir is a container holding about two-thirds of a pint of fluid and is at all times open to the atmosphere.

No trouble will be experienced with the maintenance of the hydraulic mechanism if fluid is always kept in the reservoir. The reservoir is mounted in a position convenient for inspection and such that the measuring stick attached to its top may be removed to determine the fluid level.

The reservoir must always be above the master cylinder and the line between the reservoir and the cylinders must contain no traps because the fluid must flow by gravity from the reservoir to the master cylinder.

III Master Cylinder (See -2, page 46).

The piston in this master cylinder is completely immersed in fluid. The high pressure lines, -55 and -56, page 46 connect to the head end of each master cylinder. The reservoir connects to the ports in the main body of each master cylinder through the brake lines, -53 and -54, page 46. These ports are just in front of the piston cup in the off position and whenever the brakes are in the off position these ports allow the high pressure lines to accommodate themselves to changes in volume of fluid due to temperature changes and slight seepage of the fluid. It will be noted that the master cylinder is mounted so that the head end points directly downward. If it does not, trouble will be experienced in bleeding air from the line. Any air trapped in the hydraulic line is very detrimental to brake operation, because its volume will reduce under increased pressure and this will result in excess pedal travel when operating the brake.

IV Bleeding the Line.

When the hydraulic line connecting the master cylinder to the brake cylinder is disconnected, air will be admitted to the system and the line must be bled to remove the air. This same condition may develop if the fluid reservoir becomes empty. Air in the line may be determined by action of the brake pedal. If the brake pedal has a spongy action when applying the brake the cause may be due to air compressing in the system.

There are two fittings to the brake actuating cylinder that is, the inlet fitting and the bleeder. The bleeder is a needle valve with a cap or dust cover on the end.

BRAKE-HYDRAULIC
INSTALLATION
REF. DWG. 67108
REVISED 12-15-40
NOTE:-
1- DASH NUMBERS ARE PART NOS. OF REFERENCE DWG.
2- USE BRAKE FLUID: ockmelo's REFER TO TECH ORDER 21-35
3- PART NOS. -10, -11, -57, -58, -77, -78 ARE USED ON AIRPLANES 1759-1805 INC. -78 REPLACES -11, -11 REPLACES -80, -104 -77 REPLACE -82 & -83. ON AIRPLANES 1759-1808 AND 1908-1946 INC.
FRONT PEDALS
REAR PEDALS
* SEE P.70. THESE PARTS NOT USED ON SEAPLANE INSTALL SPACERS 67638-55 & -64
SIDE ELEVATION
FRAME #2 LOOKING AFT
AIRPLANE
RUDDER PEDALS FRONT COCKPIT
RUDDER PEDALS REAR COCKPIT
STRETCH SPRING
FOR ACCESSORY ASSEMBLY
SUPPLIED WITH BRAKE REF 67709

To bleed the line proceed as follows:

1. Fill the reservoir with fluid (Lockheed #5) (see page 44 under "Fluid"). During the bleeding operation it will be necessary to check the fluid level in this reservoir several times, never allowing it to become empty.

2. Remove the cap or screw from the bleeder fitting.

3. Unscrew the bleeder valve one-half turn.

4. Prepare a piece of rubber tubing at least 12 inches long and slip one end of the tubing over the end of the bleeder fitting, allowing the free end of the tubing to hang in a receptacle.

5. Operate the brake pedal back and forth slowly which pumps fluid out of the reservoir and through the system. Continue this operation until the fluid from the hose connection on the bleeder is free of air bubbles. At least one pint of fluid must be pumped through the system before all air is removed.

6. Close bleeder fitting tightly and insert the cap or dust cover.

7. Check the fluid level in the reservoir, adding fluid if necessary.

V Brake Adjustment.

Bleeding the hydraulic system is not necessary before each brake adjustment, unless there is indication of air in the system.

1. Before attempting to adjust the brakes, the wheel should be removed and the brake inspected for damaged parts and the brake lining for grease. If the lining is greasy, replace with new lining. If the brake or return springs do not have a good initial tension they should be replaced.

2. Inspect the wheel bearings and remove any thin grease. Repack the bearings, using a small quantity of heavy graphite fibre grease, and renew the felt washer if necessary.

3. Replace the wheel and the wheel bearing adjusting nut. Be sure there is no brake drag. Then with the wheel spinning, tighten the adjusting nut slowly until a

bearing drag on the spinning wheel is noticed. Back off the nut to the next castellation and lock in position with the cotter pin. Brake drag should not be confused with bearing tightness while rotation the wheel during bearing adjustment. The brake should now be adjusted as follows:

(a) Loosen the eccentric lock nut and turn the eccentric in the direction of wheel rotation until the wheel is locked in position. Back off the eccentric until the wheel just rotates freely. With a close fitting wrench hold the eccentric in this position and tighten the lock nut. This should provide a clearance of .010 inch or less at the feeler gauge nearest the eccentric.

(b) Uncover the star wheel adjusting screw hole by rotating the cover plate and with a screw-driver turn the star wheel away from the axle until a brake drag is noticed when turning the wheel by hand. Back off the star wheel until there is no brake drag. Replace the cover plate. This should give a primary brake shoe clearance at feeler gauge slot of not less than .010 inch.

NOTE: As the actuating end of the primary shoe is provided with a stop to control its off position, the clearance of the primary shoe may be in excess of .010 inch when the lining on this shoe has had considerable wear.

VI Inspection of Brakes

At each periodical inspection of the wheel the brake should be given a thorough inspection. This inspection should include a general check for damaged parts or corrosion of material. In addition, the following points should be observed.

1. Brake Lining.

If the brake lining has worn flush with the rivet head or shows any indication of containing grease, it should be removed; otherwise the rivet heads may cause rapid scoring of the brake drum or the grease may cause ineffective or grabby brakes.

2. Distorted Shoes.

Distorted brake shoes will not allow full contact of the lining with the brake drum, and therefore should either be replaced or straightened. When shoes are distorted out of alignment they may be straightened, providing the distortion is not too great. When straightening shoes, especially those of the die cast type, it must be rembered that the straightening process be performed slowly and carefully; otherwise the shoe will crack.

3. Lubrication.

The brake should be dismantled regularly and all working parts inspected and checked to see that they are free to operate. This includes the cam shaft and the pivot points of the secondary shoes. It is recommended the anchor bolt be lightly treated with a heavy grease whenever the brake is dismantled. Such lubrication is proper to other working parts, extreme care being taken to see that no grease is allowed to get on the brake lining. Oil should not be used.

4. Hydraulic System.

The maintenance of the hydraulic type brake consists chiefly of keeping fluid in the reservoir. If the reservoir becomes empty air will be admitted to the system.

The hydraulic line, unless properly supported to prevent vibration, may leak at the fittings. These leaks should be corrected at once. Copper gaskets which have been scored or damaged to the point where leaks occur should be replaced with new parts. If leaks are noticed from the brake cylinder the piston and piston cup should be removed and inspected. Replacement of rubber cup should correct such leaks unless the cylinder sleeve is scored. If the rubber cup is not soft and pliable, or if it has been cut by the piston, it should be replaced. Care should be taken in replacing these parts to see that no fluid is allowed to contact the brake lining.

Do not dismantle the master cylinder. If these units give trouble they should be returned to the manufacturer for repair.

After long periods of service the rubber hose connection may show signs of deterioration such as swelling or cracking. The hose in these cases should be replaced.

(D) Tail Wheel

(1) Refer to Tail Wheel Installation Drawing No. 67709, page 51 for general arrangement and installation of tail wheel.

(2) Three (3) bolts secure the entire tail wheel to frame #16 of the fuselage structure.

(3) The tail wheel is of the free-swiveling type and is lockable in a fore and aft position from either cockpit.

(4) The tail wheel is a pneumatic 10 x 3-4 wheel.

(5) Air pressure in tail wheel is 55 pounds.

(6) The shock absorber strut used on the tail wheel installation is of the spring and oil type. Fill through plug in top of strut until oil overflows. (Use Mineral Oil - Specification M-339 - Refer to T.O. 27-39).

(E) Landing Gear - Float Type.

(1) Refer to Float Erection Drawing No. 68143, page 53 for general arrangement and installation of main float and wing tip floats.

(2) All struts are of fixed length except the diagonal (forward and aft) struts for the wing tip float which are adjustable.

(3) Alignment of main floats may be obtained by means of front, rear and side wires.

(4) Alignment of the wing tip floats may be obtained by means of the side diagonal strut.

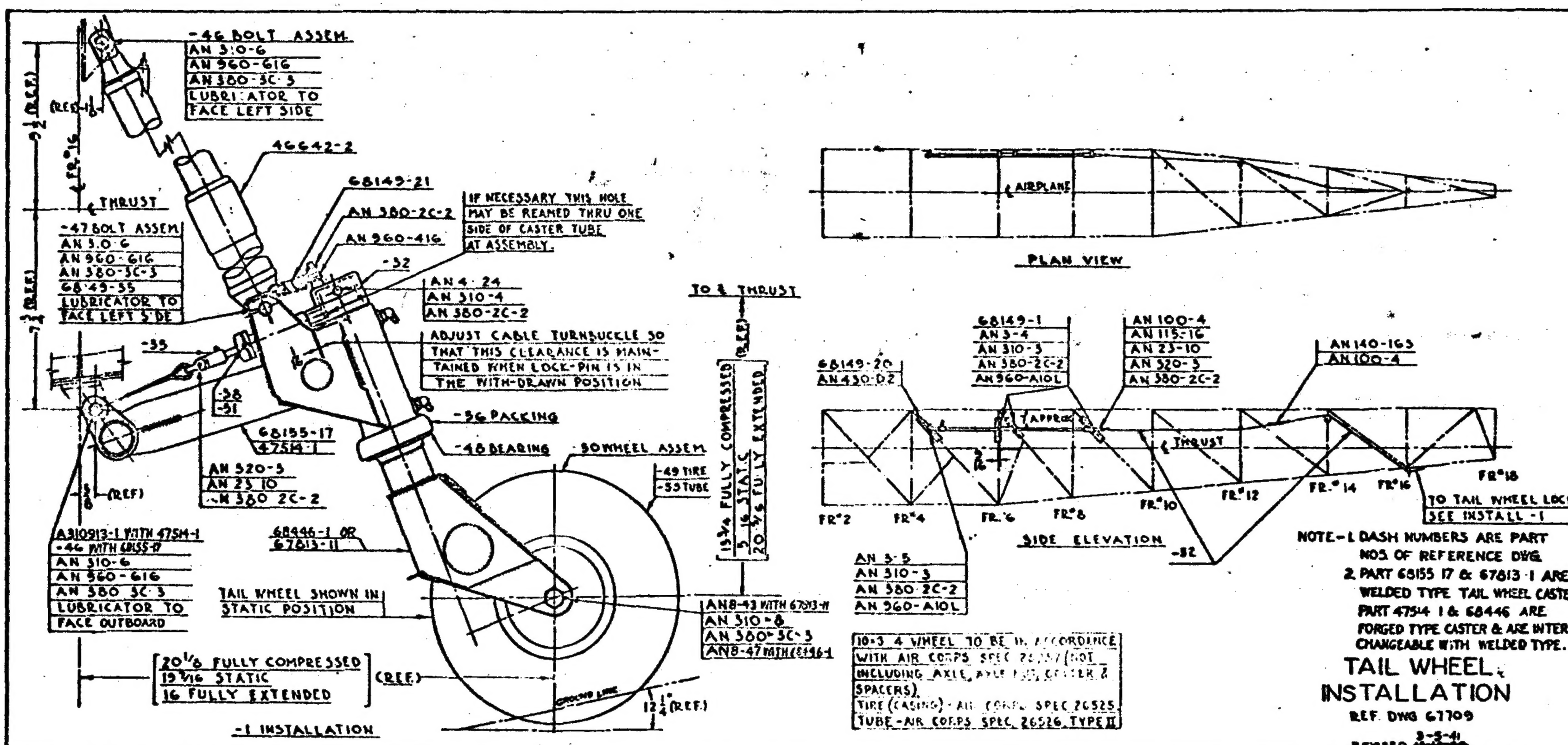
(5) The front lugs at Station #2 of the fuselage are used for both wheel and float types landing gear.

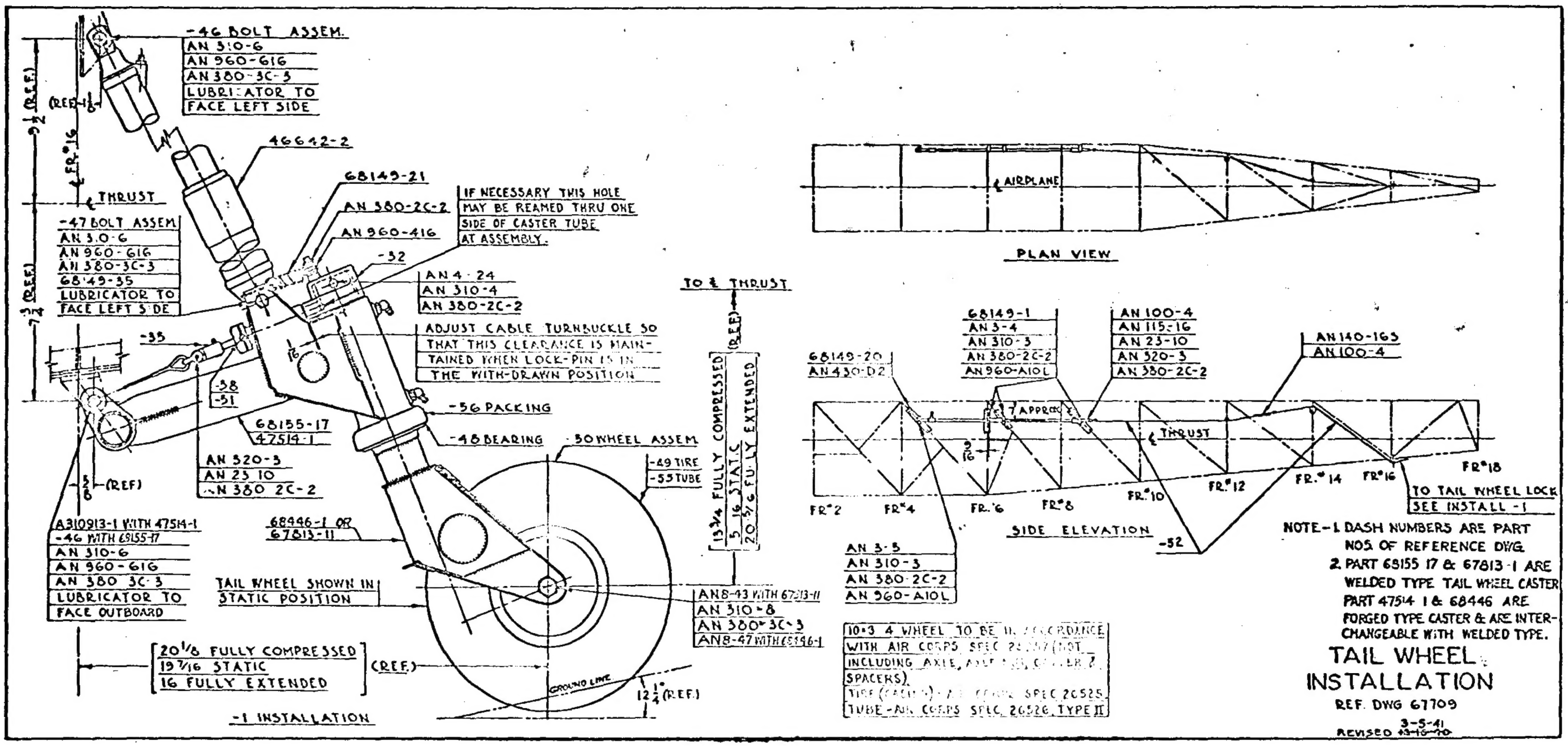
(6) The wing tip float attachment fittings are permanently attached on the lower beams.

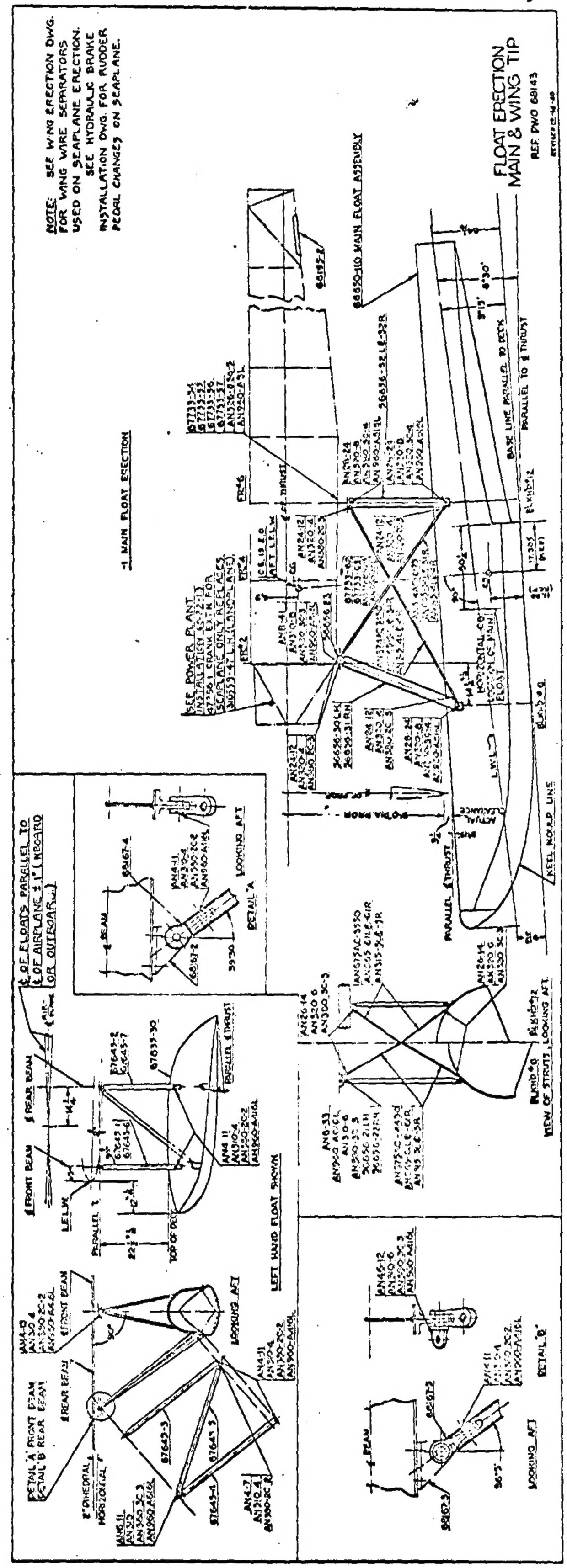
(7) See Wing Erection Drawing 68141, page 23 for different wing wire separators used on seaplane erection.

(8) See Hydraulic Brake Installation Drawing 67708, page 46 for changes to rudder pedals for seaplane erection.

(9) When converting landplane to seaplane also remove brake control tubing between master cylinders and wheels. Plug outlet holes in master cylinders.


-46 BOLT ASSEM.
AN 310-6
AN 960-616
AN 380-3C-3
LUBRICATOR TO FACE LEFT SIDE
46642-2
68149-21
AN 380-2C-2
AN 960-416
IF NECESSARY THIS HOLE MAY BE REAMED THRU ONE SIDE OF CASTER TUBE AT ASSEMBLY.
-32
AN 4-24
AN 310-4
AN 380-2C-2
ADJUST CABLE TURNBUCKLE SO THAT THIS CLEARANCE IS MAIN-TAINED WHEN LOCK-PIN IS IN THE WITH-DRAWN POSITION
℄ THRUST
℄ FR. 16
-47 BOLT ASSEM.
AN 3-0-6
AN 960-616
AN 380-3C-3
68149-35
LUBRICATOR TO FACE LEFT SIDE
-35
-38
-51
68155-17
47514-1
-56 PACKING
-48 BEARING
-50 WHEEL ASSEM.
-49 TIRE
-55 TUBE
AN 320-5
AN 23-10
AN 380-2C-2
A310913-1 WITH 47514-1
-46 WITH 68155-17
AN 310-6
AN 960-616
AN 380-3C-3
LUBRICATOR TO FACE OUTBOARD
68446-1 OR 67813-11
TAIL WHEEL SHOWN IN STATIC POSITION
20 1/8 FULLY COMPRESSED
19 7/16 STATIC
16 FULLY EXTENDED
(REF.)
-1 INSTALLATION
GROUND LINE
12 1/4" (REF.)
TO ℄ THRUST
15 3/4 FULLY COMPRESSED
5 1/16 STATIC
20 5/16 FULLY EXTENDED
AN8-43 WITH 67813-11
AN 310-8
AN 380-3C-3
AN8-47 WITH 68446-1
PLAN VIEW
℄ AIRPLANE
SIDE ELEVATION
68149-20
AN 430-D2
68149-1
AN 3-4
AN 310-3
AN 380-2C-2
AN 960-A10L
AN 100-4
AN 115-16
AN 23-10
AN 320-3
AN 380-2C-2
AN 140-163
AN 100-4
℄ THRUST
FR. 2
FR. 4
FR. 6
FR. 8
FR. 10
FR. 12
FR. 14
FR. 16
FR. 18
TO TAIL WHEEL LOCK SEE INSTALL -1
AN 3-5
AN 310-3
AN 380-2C-2
AN 960-A10L
-82
SPACERS).
TIRE (CASING) - AIR CORPS SPEC. 26525
TUBE - AIR CORPS SPEC. 26526 TYPE II
NOTE - 1. DASH NUMBERS ARE PART NOS. OF REFERENCE DWG.
2. PART 68155-17 & 67813-1 ARE WELDED TYPE TAIL WHEEL CASTER. PART 47514-1 & 68446 ARE FORGED TYPE CASTER & ARE INTER-CHANGEABLE WITH WELDED TYPE.
TAIL WHEEL INSTALLATION
REF. DWG 67709


-46 BOLT ASSEM.
AN 310-6
AN 960-616
AN 380-3C-3
LUBRICATOR TO FACE LEFT SIDE
46642-2
68149-21
AN 380-2C-2
AN 960-416
-32
IF NECESSARY THIS HOLE MAY BE REAMED THRU ONE SIDE OF CASTER TUBE AT ASSEMBLY.
-47 BOLT ASSEM.
AN 3.0-6
AN 960-616
AN 380-3C-3
68149-35
LUBRICATOR TO FACE LEFT SIDE
THRUST
FR.#16
AN 4-24
AN 310-4
AN 380-2C-2
ADJUST CABLE TURNBUCKLE SO THAT THIS CLEARANCE IS MAINTAINED WHEN LOCK-PIN IS IN THE WITH-DRAWN POSITION
-35
-38
-51
-56 PACKING
-48 BEARING
-50 WHEEL ASSEM.
-49 TIRE
-55 TUBE
68155-17
47514-1
AN 320-3
AN 23 10
AN 380 2C-2
A310913-1 WITH 47514-1
-46 WITH 68155-17
AN 310-6
AN 960-616
AN 380 3C-3
LUBRICATOR TO FACE OUTBOARD
68946-1 OR 67813-11
TAIL WHEEL SHOWN IN STATIC POSITION
AN8-43 WITH 67813-11
AN 310-8
AN 380-3C-3
AN8-47 WITH 68946-1
20 1/8 FULLY COMPRESSED
19 7/16 STATIC
16 FULLY EXTENDED
(REF.)
-1 INSTALLATION
GROUND LINE
12 1/4 (REF.)
TO ℄ THRUST
13 3/4 FULLY COMPRESSED
5 16 STATIC
20 5/16 FULLY EXTENDED
(REF.)
℄ AIRPLANE
PLAN VIEW
68149-1
AN 3-4
AN 310-3
AN 380-2C-2
AN 960-A10L
AN 100-4
AN 115-16
AN 23-10
AN 320-3
AN 380-2C-2
AN 140-165
AN 100-4
68149-20
AN 430-D2
7 APPROX.
℄ THRUST
FR.#2
FR.#4
FR.#6
FR.#8
FR.#10
FR.#12
FR.#14
FR.#16
FR.#18
TO TAIL WHEEL LOCK SEE INSTALL.-1
SIDE ELEVATION
-52
AN 3-5
AN 310-3
AN 380-2C-2
AN 960-A10L
SPACERS)
NOTE-1. DASH NUMBERS ARE PART NOS. OF REFERENCE DWG.
2. PART 68155-17 & 67813-1 ARE WELDED TYPE TAIL WHEEL CASTER. PART 47514-1 & 68446 ARE FORGED TYPE CASTER & ARE INTERCHANGEABLE WITH WELDED TYPE.
TAIL WHEEL INSTALLATION
REF. DWG 67709
3-5-41


NOTE: SEE WING ERECTION DWG. FOR WING WIRE SEPARATORS USED ON SEAPLANE ERECTION. SEE HYDRAULIC BRAKE INSTALLATION DWG. FOR RUDDER PEDAL CHANGES ON SEAPLANE.
FLOAT ERECTION
MAIN & WING TIP
REF DWG 68143
-1 MAIN FLOAT ERECTION
68650-110 MAIN FLOAT ASSEMBLY
BASE LINE PARALLEL TO DECK
PARALLEL TO ℄ THRUST
KEEL MOLD LINE
LEFT HAND FLOAT SHOWN
VIEW OF STRUTS, LOOKING AFT
DETAIL "A"
DETAIL "B"
LOOKING AFT
℄ OF FLOATS PARALLEL TO ℄ OF AIRPLANE ± 1° (INBOARD OR OUTBOARD)
DETAIL "A" FRONT BEAM
DETAIL "B" REAR BEAM
℄ FRONT BEAM
℄ REAR BEAM
TOP OF DECK
SEE POWER PLANT INSTALLATION